

The listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

1. (currently amended) A method for implementing redundancy of stateful network address translation information in at least one network device of a data network, the method comprising:

receiving, at a first network device, a first packet, said first packet including a header portion comprising address information relating to a source device and a destination device associated with the first packet;

generating a first network address translation (NAT) entry relating to the source device of the first packet, wherein the source device is associated with a globally unique network address;

storing the first NAT entry in a first NAT data structure residing at the first network device;

generating a first network address translation (NAT) transaction message which includes information relating to updates or modifications performed on the first NAT data structure; and

transmitting the first NAT transaction message to at least one other network device to thereby cause the at least one other network device to update a respective NAT data structure associated with the at least one other network device using information from said first NAT transaction message;

wherein the first NAT entry includes a NAT ID field relating to an identity of a specific network device which is responsible for controlling modification of that particular NAT entry.

2. (canceled)

3. (currently amended) The method of claim [2] 1 further comprising consulting the NAT ID field corresponding to a particular NAT entry in the first NAT data structure to determine whether modification of the particular NAT entry may be performed.

4. (previously presented) The method of claim 3 further comprising allowing the first network device to modify the particular NAT entry in response to a determination that the NAT ID field of the particular NAT entry corresponds to said first network device.

5. (previously presented) The method of claim 3 further comprising preventing the first network device from modifying the particular NAT entry in response to a determination that the NAT ID field of the particular NAT entry does not correspond to said first network device.

6. (currently amended) The method of claim [2] 1 wherein the NAT transaction message comprises information relating to:

an identifier of the at least one other network device; and
instructions for causing the at least one other network device to modify its respective NAT data structure to include a NAT entry comprising information that is substantially identical to the information contained in the first NAT entry.

7. (previously presented) The method of claim 1 wherein the first network device is a router.

8. (previously presented) The method of claim 6 further comprising:
receiving said first NAT transaction message at the at least one other network device; and
modifying a second NAT data structure residing on the at least one other network device in accordance with instructions provided in said first NAT transaction message.

9. (previously presented) The method of claim 8 wherein said modifying includes creating a new NAT entry in the second data structure comprising information that is substantially identical to the information contained in said first NAT entry.

10. (currently amended) The method of claim [1] 54 wherein the first network device is configured as a primary traffic handling device of a primary-backup redundancy group, and wherein the at least one other network device is configured as a backup traffic handling device of the primary-backup redundancy group.

11. (currently amended) The method of claim [1] 54 wherein the first network device is configured as an active traffic handling device of an active-standby redundancy group, and wherein the at least one other network device is configured as a standby traffic handling device of the active-standby redundancy group.

12. (currently amended) The method of claim [1] 54 wherein the first network device is configured as a first peer traffic handling device of a peer-peer redundancy group, and wherein the at least one other network device is configured as a second peer traffic handling device of the peer-peer redundancy group.

13. (currently amended) A method for synchronizing network address translation (NAT) information stored on different network devices that have been configured to implement a network address translation protocol, each of said network devices including a respective NAT data structure configured to store said NAT information, the method comprising:

creating, in a first NAT data structure of a first network device, a first network address translation (NAT) entry relating to a network node engaged in a communication session, said first NAT entry including information relating to a local network address of the network node and a dynamically assigned global network address of the network node;

generating a first network address translation (NAT) transaction message which includes information relating to updates or modifications performed on the first NAT data structure; and

transmitting the first NAT transaction message to at least one other network device to thereby cause the at least one other network device to update a respective NAT data structure associated with the at least one other network device using information from said first NAT transaction message;

wherein the first network device and the at least one other network device are each configured as traffic handling devices that are members of a first redundancy group.

14. (previously presented) The method of claim 13 wherein the first NAT entry includes a NAT ID field relating to an identity of a specific network device which is responsible for controlling modification of the first NAT entry.

15. (previously presented) The method of claim 14 wherein the NAT transaction message comprises information relating to:

an identifier of the at least one other network device; and

instructions for causing the at least one other network device to modify its respective NAT data structure by creating a second NAT entry comprising information that is substantially identical to the information included in the first NAT entry.

16. (previously presented) The method of claim 15 wherein the second NAT entry includes a corresponding NAT ID field which specifies an identity of the first network device.

17. (previously presented) The method of claim 15 further comprising:
receiving said first NAT transaction message at the at least one other network device; and
modifying a second NAT data structure residing on the at least one other network device in accordance with instructions provided in said first NAT transaction message.

18. (previously presented) The method of claim 17 wherein said modifying includes creating a new NAT entry in the second data structure comprising information that is substantially identical to the information contained in said first NAT entry.

19. (previously presented) The method of claim 15 further comprising:
receiving said first NAT transaction message at the at least one other network device; and
modifying, using information from said first NAT transaction message, a second NAT data structure residing on the at least one other network device by creating a second NAT entry in the second data structure, said second NAT entry comprising information that is substantially identical to the information included in said first NAT entry.

20. (previously presented) The method of claim 19 further comprising consulting a NAT ID field corresponding to a particular NAT entry in the second NAT data structure to determine whether modification of the particular NAT entry may be performed.

21. (previously presented) The method of claim 20 further comprising allowing the at least one other network device to modify the particular NAT entry in response to a determination that the NAT ID field of the particular NAT entry corresponds to said at least one other network device.

22. (previously presented) The method of claim 20 further comprising preventing the at least one other network device from modifying the particular NAT entry in response to a determination that the NAT ID field of the particular NAT entry does not correspond to said at least one other network device.

23. (previously presented) The method of claim 13 wherein the first network device is configured as a primary traffic handling device of a primary-backup redundancy group, and wherein the at least one other network device is configured as a backup traffic handling device of the primary-backup redundancy group.

24. (previously presented) The method of claim 13 wherein the first network device is configured as an active traffic handling device of an active-standby redundancy group, and wherein the at least one other network device is configured as a standby traffic handling device of the active-standby redundancy group.

25. (previously presented) The method of claim 13 wherein the first network device is configured as an first peer traffic handling device of a peer-peer redundancy group, and wherein the at least one other network device is configured as a second peer traffic handling device of the peer-peer redundancy group.

26-34. (canceled)

35. (currently amended) A network device configured to implement redundancy of stateful network address translation information in a data network, the network device comprising:

- at least one processor;

- at least one interface configured or designed to provide a communication link to at least one other network device in the data network; and

- memory;

- said at least one processor being configured to store in said memory a plurality of data structures, including:

- a first network address translation (NAT) data structure configured to store information relating to address translations corresponding to selected network nodes in the network; and

- a NAT transaction data structure configured to store transactional information relating to updates or modifications performed on the first NAT data structure;

- said network device being configured to transmit at least a portion of said NAT transactional information to said at least one other network device to thereby cause the at least one other NAT network device to modify a respective NAT data structure associated with the at least one other NAT network device using the NAT transaction information;

wherein the network device is further configured or designed to receive NAT transactional information from said at least one other device, said received NAT transactional information including information relating to updates or modifications performed on said respective NAT data structure associated with the at least one other network device; and

wherein the network device is further configured or designed to update or modify said first NAT data structure using data from said received NAT transactional information to thereby achieve redundancy of NAT information stored on the first network device and the at least one other network device; and

wherein the first network device and the at least one other network device are each configured as traffic handling devices that are members of a first redundancy group.

36. (canceled)

37. (previously presented) The device of claim 35 wherein the network device is configured as a primary traffic handling device of a primary-backup redundancy group, and wherein the at least one other network device is configured as a backup traffic handling device of the primary-backup redundancy group.

38. (previously presented) The device of claim 35 wherein the network device is configured as an active traffic handling device of an active-standby redundancy group, and wherein the at least one other network device is configured as a standby traffic handling device of the active-standby redundancy group.

39. (previously presented) The device of claim 36 wherein the network device is configured as a first peer traffic handling device of a peer-peer redundancy group, and wherein the at least one other network device is configured as a second peer traffic handling device of the peer-peer redundancy group.

40. (previously presented) The device of claim 36 wherein the network device is configured as a traffic handling device and further comprises a routing table.

41. (canceled)

42. (currently amended) A system for synchronizing network address translation information stored on different network devices in a data network, the system comprising:

a first network device configured to implement a network address translation protocol, the first network device comprising:

at least one first processor; and

first memory;

wherein said at least one first processor is configured to store in said first memory a first plurality of data structures, including:

a first network address translation (NAT) data structure configured to store information relating to address translations corresponding to selected network nodes in the network; and

a first NAT transaction data structure configured to store transactional information relating to updates or modifications performed on the first NAT data structure;

said first network device being configured to transmit at least a portion of said NAT transactional information to at least one other network device; and

a second network device configured to implement a network address translation protocol, the second network device comprising:

at least one second processor; and

second memory;

wherein said at least one first processor is configured to store in said second memory a second plurality of data structures, including:

a second network address translation (NAT) data structure configured to store information relating to address translations corresponding to selected network nodes in the network; and

a second NAT transaction data structure configured to store transactional information relating to updates or modifications performed on the second NAT data structure;

said second network device being configured or designed to receive NAT transactional information from said first device, and update or modify said second NAT data structure using data from the NAT transactional information received from the first device;

wherein the first network device and the at least one other network device are each configured as traffic handling devices that are members of a first redundancy group.

43. (previously presented) The device of claim 42 wherein the first network device is configured as a primary traffic handling device of a primary-backup redundancy group, and

wherein the second network device is configured as a backup traffic handling device of the primary-backup redundancy group.

44. (previously presented) The device of claim 42 wherein the first network device is configured as an active traffic handling device of an active-standby redundancy group, and wherein the second network device is configured as a standby traffic handling device of the active-standby redundancy group.

45. (previously presented) The device of claim 42 wherein the first network device is configured as a first peer traffic handling device of a peer-peer redundancy group, and wherein the second network device is configured as a second peer traffic handling device of the peer-peer redundancy group.

46-51. (canceled)

52. (previously presented) A method for implementing redundancy of stateful network address translation information in at least one network device of a data network, the method comprising:

receiving, at a first network device, a first packet, said first packet including a header portion comprising address information relating to a source device and a destination device associated with the first packet;

generating a first network address translation (NAT) entry relating to the source device of the first packet, wherein the source device is associated with a globally unique network address;

storing the first NAT entry in a first NAT data structure residing at the first network device;

generating a first network address translation (NAT) transaction message which includes information relating to updates or modifications performed on the first NAT data structure; and

transmitting the first NAT transaction message to at least one other network device to thereby cause the at least one other network device to update a respective NAT data structure associated with the at least one other network device using information from said first NAT transaction message;

wherein the first network device is configured as an active traffic handling device of an active-standby redundancy group, and wherein the at least one other network device is configured as a standby traffic handling device of the active-standby redundancy group.

53. (previously presented) A method for implementing redundancy of stateful network address translation information in at least one network device of a data network, the method comprising:

receiving, at a first network device, a first packet, said first packet including a header portion comprising address information relating to a source device and a destination device associated with the first packet;

generating a first network address translation (NAT) entry relating to the source device of the first packet, wherein the source device is associated with a globally unique network address;

storing the first NAT entry in a first NAT data structure residing at the first network device;

generating a first network address translation (NAT) transaction message which includes information relating to updates or modifications performed on the first NAT data structure; and

transmitting the first NAT transaction message to at least one other network device to thereby cause the at least one other network device to update a respective NAT data structure associated with the at least one other network device using information from said first NAT transaction message;

wherein the first network device is configured as a first peer traffic handling device of a peer-peer redundancy group, and wherein the at least one other network device is configured as a second peer traffic handling device of the peer-peer redundancy group.

54. (new) A method for implementing redundancy of stateful network address translation information in at least one network device of a data network, the method comprising:

receiving, at a first network device, a first packet, said first packet including a header portion comprising address information relating to a source device and a destination device associated with the first packet;

generating a first network address translation (NAT) entry relating to the source device of the first packet, wherein the source device is associated with a globally unique network address;

storing the first NAT entry in a first NAT data structure residing at the first network device;

generating a first network address translation (NAT) transaction message which includes information relating to updates or modifications performed on the first NAT data structure; and

transmitting the first NAT transaction message to at least one other network device to thereby cause the at least one other network device to update a respective NAT data structure

associated with the at least one other network device using information from said first NAT transaction message;

wherein the first network device and the at least one other network device are each configured as traffic handling devices that are members of a first redundancy group.

55. (new) A system for implementing redundancy of stateful network address translation information in at least one network device of a data network, the system comprising:

means for receiving, at a first network device, a first packet, said first packet including a header portion comprising address information relating to a source device and a destination device associated with the first packet;

means for generating a first network address translation (NAT) entry relating to the source device of the first packet, wherein the source device is associated with a globally unique network address;

means for storing the first NAT entry in a first NAT data structure residing at the first network device;

means for generating a first network address translation (NAT) transaction message which includes information relating to updates or modifications performed on the first NAT data structure; and

means for transmitting the first NAT transaction message to at least one other network device to thereby cause the at least one other network device to update a respective NAT data structure associated with the at least one other network device using information from said first NAT transaction message;

wherein the first network device and the at least one other network device are each configured as traffic handling devices that are members of a first redundancy group selected from at least one of the following: active-standby redundancy groups, primary-backup redundancy groups, and peer-peer redundancy groups.

56. (new) A system for implementing redundancy of stateful network address translation information in at least one network device of a data network, the system comprising:

means for receiving, at a first network device, a first packet, said first packet including a header portion comprising address information relating to a source device and a destination device associated with the first packet;

means for generating a first network address translation (NAT) entry relating to the source device of the first packet, wherein the source device is associated with a globally unique network address;

means for storing the first NAT entry in a first NAT data structure residing at the first network device;

means for generating a first network address translation (NAT) transaction message which includes information relating to updates or modifications performed on the first NAT data structure; and

means for transmitting the first NAT transaction message to at least one other network device to thereby cause the at least one other network device to update a respective NAT data structure associated with the at least one other network device using information from said first NAT transaction message;

wherein the first NAT entry includes a NAT ID field relating to an identity of a specific network device which is responsible for controlling modification of that particular NAT entry.